

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 50 (original): A method of generating a base comprising the steps of:

- (a) providing a cation source in a cation source reservoir,
- (b) flowing an aqueous liquid stream through a first base generation chamber separated from said cation source reservoir by a first barrier substantially preventing liquid flow while providing a cation transport bridge, said first barrier being at least one mm thick,
- (c) applying an electric potential between an anode in electrical communication with said cation source reservoir and a cathode in electrical communication with said first base generation chamber to electrolytically generate hydroxide ions in said first base generation chamber and to cause cations in said cation source reservoir to electromigrate toward said first barrier and to be transported across said first barrier toward said cathode to combine with said transported cations to form cation hydroxide, and
- (d) removing the cation hydroxide in an aqueous liquid stream as an effluent from said first base generation chamber.

Claim 51 (original): The method of Claim 50 in which the volume of said cation source reservoir is at least about 5 times the volume of said first base generation chamber.

Claim 52 (canceled).

Claim 53 (original): The method of Claim 50 used to form a base eluent for an anion analysis system further comprising the steps of:

- (e) flowing said cation hydroxide generated in step(d) and a liquid sample containing anions to be detected through a chromatographic separator in which anions to be detected are chromatographically separated, forming a chromatograph effluent, and
- (f) flowing said chromatography effluent, with or without further treatment, past a detector in which the separated ions in said chromatography effluent are detected.

Claim 54 (currently amended): A method of generating a base comprising the steps of:

- (a) providing a cation source in a cation source reservoir,
- (b) flowing an aqueous liquid stream through a first base generation chamber separated from said cation source reservoir by a first barrier substantially preventing liquid flow while

providing a cation transport bridge, said first barrier being at least one mm thick, ~~The method of Claim 50~~ in which a pressure of at least 500 psi is maintained in said first base generation chamber,

(c) applying an electric potential between an anode in electrical communication with said cation source reservoir and a cathode in electrical communication with said first base generation chamber to electrolytically generate hydroxide ions in said first base generation chamber and to cause cations in said cation source reservoir to electromigrate toward said first barrier and to be transported across said first barrier toward said cathode to combine with said transported cations to form cation hydroxide, and

(d) removing the cation hydroxide in an aqueous liquid stream as an effluent from said first base generation chamber.

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Claim 55 (original): A method of generating an acid comprising the steps of:

(a) providing an anion source in an anion source reservoir,
(b) flowing an aqueous liquid stream through a first acid generation chamber separated from said anion source reservoir by a first barrier substantially preventing liquid flow while providing an anion transport bridge, said barrier being at least one mm thick,

(c) applying an electric potential between a cathode in electrical communication with said anion source reservoir and an anode in electrical communication with said first acid generation chamber to electrolytically generate hydronium ions in said first acid generation chamber and to cause anions in said anion source reservoir to electromigrate toward said first barrier and to be transported across said first barrier toward said anode to combine with said transported anions to form an acid, and

(d) removing the acid in an aqueous liquid stream as an effluent from said first acid generation chamber.

Claim 56 (original): The method of Claim 55 in which the volume of said anion source reservoir is at least about 5 times the volume of said first acid generation chamber.

Claim 57 (canceled).

Claim 58 (currently amended): A method of generating an acid comprising the steps of:

(a) providing an anion source in an anion source reservoir,
(b) flowing an aqueous liquid stream through a first acid generation chamber separated from said anion source reservoir by a first barrier substantially preventing liquid flow while

providing an anion transport bridge, said barrier being at least one mm thick, The method of Claim 55 in which a pressure of at least 500 psi is maintained in said first acid generation chamber,

(c) applying an electric potential between a cathode in electrical communication with said anion source reservoir and an anode in electrical communication with said first acid generation chamber to electrolytically generate hydronium ions in said first acid generation chamber and to cause anions in said anion source reservoir to electromigrate toward said first barrier and to be transported across said first barrier toward said anode to combine with said transported anions to form an acid, and

(d) removing the acid in an aqueous liquid stream as an effluent from said first acid generation chamber.

3 / Claim 59 (original): A method of generating a base comprising the steps of:

(a) providing a cation source in a cation source reservoir,
(b) pumping an aqueous liquid stream through a first base generation chamber using a pump with an outlet disposed upstream of a first base generation chamber which is separated from said cation source reservoir by a first barrier substantially preventing liquid flow while providing a cation transport bridge,

(c) applying an electric potential between an anode in electrical communication with said cation source reservoir and a cathode in electrical communication with said first base generation chamber to electrolytically generate hydroxide ions in said first base generation chamber and to cause cations in said cation source reservoir to electromigrate toward said first barrier and to be transported across said first barrier toward said cathode to combine with said transported cations to form cation hydroxide, and

(d) removing the cation hydroxide in an aqueous liquid stream as an effluent from said first base generation chamber.

Claim 60 (canceled).

Claim 61 (original): The method of Claim 59 used to form a base eluent for an anion analysis system further comprising the steps of:

(e) flowing said cation hydroxide generated in step(d) and a liquid sample containing anions to be detected through a chromatographic separator in which anions to be detected are chromatographically separated, forming a chromatograph effluent, and

(f) flowing said chromatography effluent, with or without further treatment, past a detector in which the separated ions in said chromatography effluent are detected.

Claim 62 (currently amended): The method of Claim ~~59~~ 61 further comprising, prior to step (e) the following step:

(g) pumping through a gradient pump one or more gradient eluents into said cation hydroxide eluent stream.

Claim 63 (original): A method of generating an acid comprising the steps of:

(a) providing an anion source in an anion source reservoir,
(b) pumping an aqueous liquid stream through a first acid generation chamber using a pump with an outlet disposed upstream of a first acid generation chamber which is separated from said anion source reservoir by a first barrier substantially preventing liquid flow while providing an anion transport bridge,

(c) applying an electric potential between a cathode in electrical communication with said anion source reservoir and an anode in electrical communication with said first acid generation chamber to electrolytically generate hydronium ions in said first acid generation chamber and to cause anions in said anion source reservoir to electromigrate toward said first barrier and to be transported across said first barrier toward said anode to combine with said transported anions to form an acid, and

(d) removing the acid in an aqueous liquid stream as an effluent from said first acid generation chamber.

Claim 64 (canceled).

Claim 65 (original): The method of Claim 63 used to form an acid eluent for an cation analysis system further comprising the steps of:

(e) flowing said acid generated in step(d) and a liquid sample containing cations to be detected through a chromatographic separator in which cations to be detected are chromatographically separated, forming a chromatograph effluent, and

(f) flowing said chromatography effluent, with or without further treatment, past a detector in which the separated cations in said chromatography effluent are detected.

Claim 66 (new): A method of generating a base comprising the steps of:

- (a) providing a cation source in a cation source reservoir,
- (b) flowing an aqueous liquid stream through a first base generation chamber separated from said cation source reservoir by a first barrier substantially preventing liquid flow while providing a cation transport bridge, said first barrier being at least one mm thick, said first base generation chamber being pressurized, the pressure maintained in said first base generation chamber being at least about 2 times the pressure maintained in said cation source reservoir,
- (c) applying an electric potential between an anode in electrical communication with said cation source reservoir and a cathode in electrical communication with said first base generation chamber to electrolytically generate hydroxide ions in said first base generation chamber and to cause cations in said cation source reservoir to electromigrate toward said first barrier and to be transported across said first barrier toward said cathode to combine with said transported cations to form cation hydroxide, and
- (d) removing the cation hydroxide in an aqueous liquid stream as an effluent from said first base generation chamber.

Claim 67 (new): A method of generating an acid comprising the steps of:

- (a) providing an anion source in an anion source reservoir,
- (b) flowing an aqueous liquid stream through a first acid generation chamber separated from said anion source reservoir by a first barrier substantially preventing liquid flow while providing an anion transport bridge, said barrier being at least one mm thick, said first acid generation chamber being pressurized, the pressure maintained in said first acid generation chamber being at least about 2 times the pressure maintained in said anion source reservoir,
- (c) applying an electric potential between a cathode in electrical communication with said anion source reservoir and an anode in electrical communication with said first acid generation chamber to electrolytically generate hydronium ions in said first acid generation chamber and to cause anions in said anion source reservoir to electromigrate toward said first barrier and to be transported across said first barrier toward said anode to combine with said transported anions to form an acid, and
- (d) removing the acid in an aqueous liquid stream as an effluent from said first acid generation chamber.

Claim 68 (new): A method of generating a base comprising the steps of:

- (a) providing a cation source in a cation source reservoir,

(b) flowing an aqueous liquid stream through a first base generation chamber separated from said cation source reservoir by a first barrier substantially preventing liquid flow while providing a cation transport bridge, said first base generation chamber being pressurized, the pressure maintained in said first base generation chamber being at least about 2 times the pressure maintained in said cation source reservoir,

(c) applying an electric potential between an anode in electrical communication with said cation source reservoir and a cathode in electrical communication with said first base generation chamber to electrolytically generate hydroxide ions in said first base generation chamber and to cause cations in said cation source reservoir to electromigrate toward said first barrier and to be transported across said first barrier toward said cathode to combine with said transported cations to form cation hydroxide, and

(d) removing the cation hydroxide in an aqueous liquid stream as an effluent from said first base generation chamber.

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Claim 69 (new): A method of generating an acid comprising the steps of:

(a) providing an anion source in an anion source reservoir,

(b) flowing an aqueous liquid stream through a first acid generation chamber separated from said anion source reservoir by a first barrier substantially preventing liquid flow while providing an anion transport bridge, said first acid generation chamber being pressurized, the pressure maintained in said first acid generation chamber being at least about 2 times the pressure maintained in said anion source reservoir,

(c) applying an electric potential between a cathode in electrical communication with said anion source reservoir and an anode in electrical communication with said first acid generation chamber to electrolytically generate hydronium ions in said first acid generation chamber and to cause anions in said anion source reservoir to electromigrate toward said first barrier and to be transported across said first barrier toward said anode to combine with said transported anions to form an acid, and

(d) removing the acid in an aqueous liquid stream as an effluent from said first acid generation chamber.

Claim 70 (new): A method of generating a base comprising the steps of:

(a) providing a cation source in a cation source reservoir,

(b) pumping an aqueous liquid stream through a first base generation chamber using a pump with an outlet disposed upstream of a first base generation chamber which is separated from said cation source reservoir by a first barrier substantially preventing liquid flow while providing a cation transport bridge, said first base generation chamber being pressurized by said pump and the pressure maintained in said base generation chamber is at least about 2 times the pressure maintained in said cation source reservoir,

(c) applying an electric potential between an anode in electrical communication with said cation source reservoir and a cathode in electrical communication with said first base generation chamber to electrolytically generate hydroxide ions in said first base generation chamber and to cause cations in said cation source reservoir to electromigrate toward said first barrier and to be transported across said first barrier toward said cathode to combine with said transported cations to form cation hydroxide, and

(d) removing the cation hydroxide in an aqueous liquid stream as an effluent from said first base generation chamber.

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Claim 71 (new): A method of generating an acid comprising the steps of:

(a) providing an anion source in an anion source reservoir,

(b) pumping an aqueous liquid stream through a first acid generation chamber using a pump with an outlet disposed upstream of a first acid generation chamber which is separated from said anion source reservoir by a first barrier substantially preventing liquid flow while providing an anion transport bridge, said first acid generation chamber being pressurized by said pump and the pressure maintained in said first acid generation chamber is at least about 2 times the pressure maintained in said anion source reservoir,

(c) applying an electric potential between a cathode in electrical communication with said anion source reservoir and an anode in electrical communication with said first acid generation chamber to electrolytically generate hydronium ions in said first acid generation chamber and to cause anions in said anion source reservoir to electromigrate toward said first barrier and to be transported across said first barrier toward said anode to combine with said transported anions to form an acid, and

(d) removing the acid in an aqueous liquid stream as an effluent from said first acid generation chamber.